

IN THE CLAIMS

Claim 1. (Currently Amended) An integrated circuit system having a plurality of macros, said integrated circuit system comprising:

an external voltage supply input configured for supplying an external voltage to the integrated circuit;

a plurality of internal voltage supply generators, each connected to a respective macro of the plurality of macros and configured for

receiving the external voltage, for

generating an internal voltage supply, and

using said generated internal voltage supply for operating its respective macro;

and

each of the plurality of internal voltage supply generators including at least one supply circuit for generating the internal voltage supply and at least one enable/disable circuit for selectively connecting and disconnecting at least a portion of the respective macro from the integrated circuit system.

Claim 2. (Original) The integrated circuit system as in claim 1, wherein each of the plurality of internal voltage supply generators regulate the internal voltage supply generated therefrom.

Claim 3. (Original) The integrated circuit system as in claim 1, wherein the external voltage is greater than the internal voltage supply.

Claim 4. (Original) The integrated circuit system as in claim 1, further comprising a scan-chain formed by a chain of scannable register latches storing fuse information and a switch enable/disable signal.

Claim 5. (Original) The integrated circuit system as in claim 1, wherein each of the plurality of internal voltage supply generators comprise a reference voltage generator for generating and providing a reference voltage for driving at least one voltage generator.

Claim 6. (Previously Amended) The integrated circuit system as in claim 5, wherein the reference voltage generator and the at least one voltage generator provide voltage to a substrate bias level voltage generator, a negative word line level voltage generator, and a boosted wordline high level voltage generator.

Claim 7. (Original) The integrated circuit as in claim 1, wherein the circuitry for generating the internal voltage supply comprises:

- a reference supply unit for generating at least one of a voltage level and current level;
- a voltage limiter coupled to the reference supply unit for controlling a voltage output level outputted from the voltage limiter;
- an oscillator coupled to the voltage limiter for receiving the voltage output level and generating an oscillating voltage level; and
- a charge pump for receiving the oscillating voltage level for generating the internal voltage supply.

Claim 8. (Original) The integrated circuit system as in claim 7, wherein a feedback voltage is provided from the charge pump to the voltage limiter.

Claim 9. (Original) The integrated circuit system as in claim 7, wherein the external voltage drives the reference supply unit, the voltage limiter, the oscillator, and the charge pump.

Claim 10. (Currently Amended) An integrated circuit system having a plurality of macros, said integrated circuit system comprising:

- an external voltage supply input configured for supplying an external voltage to the integrated circuit; and
- a plurality of internal voltage supply generators, each connected to a respective macro of the plurality of macros and configured for receiving the external voltage, generating an internal voltage supply, and using said generated internal voltage supply for operating its respective macro, wherein each of the plurality of internal voltage supply generators includes
- a reference supply unit for generating at least one of a voltage level and a current level,
- a voltage limiter coupled to the reference supply unit for controlling a voltage output level outputted from the voltage limiter,

an oscillator coupled to the voltage limiter for receiving the voltage output level and generating an oscillating voltage level,

a charge pump for receiving the oscillating voltage level for generating the internal voltage supply, and

The integrated circuit system as in claim 7, wherein the circuitry for generating the internal voltage supply further comprises an enable register coupled to the voltage limiter, the oscillator and the charge pump, wherein the enable register is configured for storing one of an enable and disable signal and for enabling or disabling at least the voltage limiter, the oscillator and the charge pump according to the stored signal.

Claim 11. (Original) The integrated circuit system as in claim 10, wherein the enable register stores one of an enable and a disable signal during a power-on period.

Claim 12. (Currently Amended) An integrated circuit system having a plurality of macros, said integrated circuit system comprising:

first means for receiving an external voltage;

second means coupled to the means for receiving the external voltage for generating an internal voltage supply and using said generated internal voltage supply for operating at least one of a plurality of internal voltage supply generators coupled to a respective macro of the plurality of macros, the second means being coupled to the first means; and

means for controlling the second means coupled to the means for receiving the external voltage according to an enable/disable signal to selectively connect and disconnect at least a portion of the respective macro of the plurality of macros.

Claim 13. (Original) The integrated circuit system as in claim 12, further comprising a scan-chain formed by a chain of scannable register latches storing fuse information and the enable/disable signal.

Claim 14. (Currently Amended) The integrated circuit system as in claim 12, wherein the second means coupled to the means for receiving the external voltage comprise a reference voltage generator for generating and providing a reference voltage for driving at least one voltage generator.

Claim 15. (Original) The integrated circuit system as in claim 14, wherein the reference voltage generator and the at least one voltage generator provide voltage to the at least one of the plurality of internal voltage supply generators.

Claim 16. (Original) The integrated circuit system as in claim 12, wherein the at least one of the plurality of internal voltage supply generators is selected from the group consisting of a substrate bias level voltage generator, a negative word line level voltage generator, and a boosted wordline high level voltage generator.

Claim 17. (Currently Amended) The integrated circuit as in claim 12, wherein the second means ~~coupled to the means for receiving the external voltage~~ comprises:

a reference supply unit for generating at least one of a voltage level and current level;

a voltage limiter coupled to the reference supply unit for controlling a voltage output level outputted from the voltage limiter;

an oscillator coupled to the voltage limiter for receiving the voltage output level and generating an oscillating voltage level; and

a charge pump for receiving the oscillating voltage level for generating the internal voltage supply.

Claim 18. (Original) The integrated circuit system as in claim 17, wherein a feedback voltage is provided from the charge pump to the voltage limiter.

Claim 19. (Original) The integrated circuit system as in claim 17, wherein the external voltage drives the reference supply unit, the voltage limiter, the oscillator, and the charge pump.

Claim 20. (Currently Amended) An integrated circuit system having a plurality of macros, said integrated circuit system comprising:

first means for receiving an external voltage; and

second means for generating an internal voltage supply and using said generated internal voltage supply for operating at least one of a plurality of internal voltage supply generators coupled to a respective macro of the plurality of macros, second means being coupled to the first means, wherein the

second means includes:

a reference supply unit for generating at least one of a voltage level and current level,
a voltage limiter coupled to the reference supply unit for controlling a voltage output level
outputted from the voltage limiter,
an oscillator coupled to the voltage limiter for receiving the voltage output level and generating
an oscillating voltage level,
a charge pump for receiving the oscillating voltage level for generating the internal
voltage supply, and

~~The integrated circuit system as in claim 17, wherein the means for controlling the
means coupled to the means for receiving the external voltage according to the enable/disable
signal comprises at least one enable register coupled to the voltage limiter, the oscillator and the
charge pump, wherein the at least one enable register is configured for storing the an
enable/disable signal and for enabling or disabling at least the voltage limiter, the oscillator and
the charge pump according to the stored enable/disable signal.~~

Claim 21. (Original) The integrated circuit system as in claim 12, wherein at least
one enable register stores the enable/disable signal during a power-on period.

Claim 22. (Original) The integrated circuit system as in claim 20, further comprising
means for performing a built-in self test for testing the DC voltage generator system.